

ABSTRACT

The present invention relates to a high tenacity polyethylene naphthalate fiber containing a silica compound. This fiber is produced by a method comprising the steps of: (A) melt-spinning a solid phase-polymerized polyethylene-2,6-naphthalate chip containing ethylene-2,6-naphthalate units at more than 85 mole% and a silica compound and having an intrinsic viscosity of 0.70-1.20, to produce a melt-spun yarn; (B) passing the melt-spun yarn through a retarded cooling zone and a cooling zone to solidify the yarn; (C) withdrawing the yarn at such a speed that the undrawn yarn has a birefringence of 0.001-0.1; and (D) subjecting the undrawn yarn to multi-stage drawing at a total draw ratio of at least 1.5 and a drawing temperature of 50-250 °C. The polyethylene naphthalate fiber has improved physical properties, such as high tenacity, and a dipped cord produced from this fiber has excellent dimensional stability and tenacity such that it can be advantageously employed as a reinforcement material of rubber products.